BOOK REVIEW

ADVANCES IN UPPER ATMOSPHERE RESEARCH : Edited By B. Landmark and Published by Pergamon Press, on behalf of Agard Price, 80s. net.

The volume consists of nearly twenty papers presented at the NATO Advanced Study Institute at Corfu in July 1960 The subject matter presented covers a sufficiently wide range of topics, such as, the theory of magnetic storms, the geophysical effects of high altitude nuclear detonations, electromagnetic waves in plasma, ionospheric studies, whistler propagation etc The entire volume is somewhat loosely devided into eight sections, each section dealing with a selected topic. Each section is followed by a summary of discussions on the relevant topic by the participants Thus in the first section we find two articles by Sydney Chapman on the theory of magnetic storms in the form of an introduction to the subject The next section contains three papers by Newman, Dyce and Thomas and Taylor on the effect of high altitude nuclear detonations on a number of geophysical phenomena as studied both by the ground-based and satellite techniques The third section contains only a single paper by A. P Mitra in which he survey the various loss-processes which contribute to the effective recombination coefficient in the ionosphere In the next section we find two purely theoretical papers by Suchi and Napolitan on the electromagnetic wave interactions in plasma This section also contains a paper by Vassy on the phenomenon of light emission in the atmosphere. The paper gives useful inforation regarding the nature of emitting particles, their distribution etc., The fifth section contains three papers on the F-region of the ionospheric. The one by Rawer gives an exhaustive account of the F_2-layer ionization distributions and presents a lot of useful experimental data Fejer gives a review of the different theories of the F-layer formation, and there is a small note by Bibl dealing with the fluctuations of ionization in the F_2-layer Storey's lone paper on whistler propagation constitutes the next section and is introductory in nature. In the seventh section are included three papers on scatter-problem. Hagfors and Landmark in their paper show how the theory of diffraction from random screens can be used to assess the relative importance of scattering from the irregularities caused by turbulance and that from meteor tails. They also conclude that the continuous signal component is always caused by turbulant scattering. Fejer gives a brief account of "incoherent scattering " as a technique in ionospheric studies Kavadas deals with auroralback scattering.

The last section contains four papers which deal with solar activity and ionospheric absorption measurements with riometer. Xanthakis shows analytically that the maximum of solar activity as a function of time of rise obeys a parabolic law. Anastassiadis, Ilias and Coroumbalos report some systematic measurements of ionospheric absorption obtained by riometer studies. They also find a high

correlation between solar activity and cosmic noise on 27.6 and 58 Mc/s. Reid's paper concern with polar cap absorption. Hultquist's paper discusses the relation between the riometer measurements and the absorption cross-section of electrons, electron density profile etc.

On the whole, the collection is a mixed fare, some being purely theoretical in nature, some experimental, some reviews and a few in the form of introduction. Perhaps the main distinguishing feature of this volume is that it contains papers dealing with quite advanced researches along with the papers which are somewhat introductory in nature. Thus the volume serves the double purpose of introducing certain topics to young reserchers and of catering to the needs of advanced research students. The presentation and the get up are in a line with the high standards set-up by the Pergamon Press.

S. R. Khastgir